

Title (en)

FORMULATION FOR 3D PRINTING BONE IMPLANTS AND METHODS FOR PREPARING THE SAME

Title (de)

FORMULIERUNG ZUM 3D-DRUCKEN VON KNOCHENIMPLANTATEN UND VERFAHREN ZUR HERSTELLUNG DAVON

Title (fr)

FORMULATION POUR L'IMPRESSION 3D D'IMPLANTS OSSEUX ET PROCÉDÉS DE PRÉPARATION DE CELLE-CI

Publication

**EP 4400124 A1 20240717 (EN)**

Application

**EP 23305052 A 20230113**

Priority

EP 23305052 A 20230113

Abstract (en)

The present invention relates to the field of personalized medicine. In particular, the invention relates to a formulation comprising (i) a calcium phosphate cement or a magnesium phosphate cement and (ii) an hydrogel of polysaccharides, for 3D printing bone implants; characterized in that the polysaccharides comprise at least one selected from: silylated hyaluronic acid and silylated chitosan.

IPC 8 full level

**A61L 27/38** (2006.01); **A61L 27/46** (2006.01); **A61L 27/54** (2006.01); **B33Y 10/00** (2015.01); **B33Y 70/10** (2020.01); **B33Y 80/00** (2015.01)

CPC (source: EP)

**A61L 27/38** (2013.01); **A61L 27/46** (2013.01); **A61L 27/54** (2013.01); **B33Y 10/00** (2014.12); **B33Y 70/10** (2020.01); **B33Y 80/00** (2014.12); **A61L 2300/414** (2013.01); **A61L 2300/64** (2013.01); **A61L 2430/02** (2013.01)

C-Set (source: EP)

**A61L 27/46** + **C08L 5/08**

Citation (applicant)

- WO 2021209616 A1 20211021 - INST NAT SANTE RECH MED [FR], et al
- WO 2021209616 A1 20211021 - INST NAT SANTE RECH MED [FR], et al
- WO 2011089267 A1 20110728 - INST NAT SANTE RECH MED [FR], et al

Citation (search report)

- [XDI] WO 2021209616 A1 20211021 - INST NAT SANTE RECH MED [FR], et al
- [A] GÖTZ LISA-MARIE ET AL: "Extrusion-Based 3D Printing of Calcium Magnesium Phosphate Cement Pastes for Degradable Bone Implants", MATERIALS, vol. 14, no. 18, 10 September 2021 (2021-09-10), pages 5197, XP093055267, Retrieved from the Internet <URL:https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8472049/pdf/materials-14-05197.pdf> DOI: 10.3390/ma14185197
- [A] KOWALEWICZ KATHARINA ET AL: "Comparison of degradation behavior and osseointegration of 3D powder-printed calcium magnesium phosphate cement scaffolds with alkaline or acid post-treatment", FRONTIERS IN BIOENGINEERING AND BIOTECHNOLOGY, vol. 10, 28 September 2022 (2022-09-28), XP093055270, DOI: 10.3389/fbioe.2022.998254
- [A] LIU WEIZHEN ET AL: "A novel injectable, cohesive and toughened Si-HPMC (silylated-hydroxypropyl methylcellulose) composite calcium phosphate cement for bone substitution", ACTA BIOMATERIALIA, vol. 10, no. 7, 1 July 2014 (2014-07-01), AMSTERDAM, NL, pages 3335 - 3345, XP055795377, ISSN: 1742-7061, DOI: 10.1016/j.actbio.2014.03.009

Designated contracting state (EPC)

AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC ME MK MT NL NO PL PT RO RS SE SI SK SM TR

Designated extension state (EPC)

BA

Designated validation state (EPC)

KH MA MD TN

DOCDB simple family (publication)

**EP 4400124 A1 20240717**; WO 2024149861 A1 20240718

DOCDB simple family (application)

**EP 23305052 A 20230113**; EP 2024050626 W 20240111